

**d. Remarks**

**INDEFINITENESS REJECTIONS**

**At page 2, the Office Action rejects claims 8 - 15 as indefinite under 35 U.S.C. § 112, second paragraph.**

In particular, the Office Action underlines the word “or” in the wherein clause of pending claim 8 thereby indicating that a clarity objection is being made to the recitation of limitation in the alternative.

Applicants note that the use of “or” terminology is expressly allowed in claims. In particular, M.P.E.P. § 2173.05(h) II states that “Alternative expressions using “or” are acceptable, such as ‘wherein R is A, B, C, or D.’” This section of the M.P.E.P. further implies that such alternate expressions are not a violation of 35 U.S.C. § 112, second paragraph.

For the above reasons, the indefiniteness rejection of pending claim 8 is improper and should be withdrawn.

**NOVELTY REJECTIONS**

**At page 3, the Office Action rejects claims 8 - 11 as anticipated by U.S. Patent 5,506,427 of Imai (Herein, referred to as Imai.).**

As amended claim 8 recites that

“either the dielectric sidewall has a thickness of 500 to 1500 angstroms or part of the extrinsic portion of the base layer is located between the substrate and an extrinsic portion of the top one of the layers.”

In contrast to the narrow range of pending claim 8, col. 3, lines 52 – 53, of Imai recite forming “a silicon oxide film (34) having a thickness of 50-200 nm ....” While 50 – 200 nm is indeed the same as 500-2,000 angstroms, Imai’s broader range does not teach the narrower range of 500 - 1500 angstroms as recited in pending claim 8. Indeed, the Office Action does not provide a prior art teaching for a particular value or particular range within the narrower range recited in claim 8.

A prior art teaching of a broader range does not of itself provide an anticipation of a claim reciting a narrower range. Indeed, the M.P.E.P. states:

When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute.”

M.P.E.P. § 2131.03 (II).

The Office Action does not provide any prior art statement to support further specificity to Imai's range of 500 – 2000 angstroms. In contrast, the pending application teaches that a thin sidewall sidewall does not substantially impeded heat transfer from the emitter via a thermally conductive semiconductor pathway. See e.g., specification, page 13, lines 26 – 30. In the absence of a teaching for further "specificity", the broader range of Imai should not anticipate the narrower range recited in pending claim 8.

Also, though Imai's Figure 1H shows an emitter layer 38, the emitter layer 38 does not have an extrinsic portion. Thus, Imai's Figure 1H does not teach that part of the extrinsic portion of the base layer is located between the substrate and an extrinsic portion of the top one of the semiconductor layers.

In the absence of a prior art teaching for either of the above features of the wherein clause in pending claim 8, pending claim 8 is novel over Imai as applied in the Office Action.

Claims 9 – 11 are novel over Imai as applied in the Office Action, at least, by their dependence on pending claim 8.

**At page 4, the Office Action rejects claims 8 and 12 – 15 as anticipated by U.S. Patent 4,962,053 of Spratt et al (Herein, referred to as Spratt.).**

Pending claim 8 recites:

the base layer comprising an extrinsic portion that laterally encircles a vertical portion of the top one of said semiconductor layers; and  
a dielectric sidewall being interposed between the vertical portion of the top one of the layers and the extrinsic portion of the base layer; ...

In particular, claim 8 recites that the dielectric sidewall is interposed between the top one of the [semiconductor] layers and the extrinsic portion of the base layer, wherein the extrinsic portion laterally encircles the vertical portion of the top one of the layers.

Spratt's Figure 12 does not disclose the above recited feature, because it does not show dielectric layers 44, 84 as being interposed between an extrinsic portion of the base layer and a vertical portion of the top layer laterally that is encircled by said extrinsic portion of the base layer. Spratt's Figure 12 at most, suggests that semiconductor emitter region 104 is laterally encircled by a portion of the base region 54. But, Spratt's Figure 12 does not show any dielectric material as being interposed between the emitter region 104 and the laterally encircling portion of the base region 54. Thus, Spratt's Figure 12 does not disclose a dielectric layer interposed between a portion of the top semiconductor layer and a laterally encircling portion of the extrinsic base as recited in pending claim 8.

Spratt's Figures 9 – 11 do not cure the above-described deficiency of Spratt's Figure 12. Indeed, Figures 9 - 11 only show an emitter region 68, and said emitter region 68 is not even laterally encircled by a portion of the base layer in Figures 9 – 11.

Since Spratt's Figures 9 – 12 do not teach the above-described feature of pending claim 8, the application of Spratt in the Office Action does not anticipate pending claim 8.

Pending claims 12 – 15 are novel over Spratt as applied in the Office Action, at least, by their dependence on pending claim 8.

In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Deposit Account No. 12-2325** as required to correct the error.

Respectfully,



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